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10/693,022	10/23/2003	Vladimir Bulovic	Y2086-10301	1746

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EXAMINER

BODDIE, WILLIAM

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/693,022

Applicant(s)

BULOVIC ET AL.

Examiner

William Boddie

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,7,8,12-18,20-22,24,26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8,13-18,20-22,24,26 and 27 is/are rejected.
- 7) ☒ Claim(s) 1 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                             |                                                                                                           |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>(2)</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                                         |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____.                                                                 |

### **DETAILED ACTION**

1. In an amendment dated, July 19<sup>th</sup> 2006, the Applicant amended claims 1-2, 7, 14-16, 18, 22, 24, and 26-27. The Applicant also cancelled claims 3-6, 9-12, 19, 23 and 25. Currently claims 1-2, 7-8, 12-18, 20-22, 24 and 26-27 are pending.

#### ***Information Disclosure Statement***

2. The information disclosure statement filed July 28<sup>th</sup>, 2006 fails to comply with 37 CFR 1.97(c) because it lacks a statement as specified in 37 CFR 1.97(e). It has been placed in the application file, but the information referred to therein has not been considered.

#### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-2, 7-8, 12-18, 20-22, 24 and 26-27 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 112***

4. Claims 7, 24 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
5. As currently written each of these dependent claims already requires photodetectors be located along the side of the substrate. With the limitations of these claims additional photodetectors are required along the periphery of the substrate. The

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Examiner was unable to locate in the original disclosure any discussion of photodetectors located along both the outer periphery and the edge of the substrate.

***Response to Amendment***

6. The amendment filed July 19<sup>th</sup>, 2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: claims 7, 24 and 26 require that additional photodetectors be located along the outer periphery of the substrate in addition to the edge arranged photodetectors.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Objections***

7. Claim 1 is objected to because of the following informalities: as currently written the phrase; "at least one photodetector arranged on one of said side surfaces that detects light emitted..." is misleading. It appears that the side surfaces are detecting light. One possible way to alleviate this problem is as follows; "at least one photodetector-- arranged on one of said side surfaces-- that detects light emitted...". Appropriate correction is required.

8. Claim 14 is objected to because of the following informalities: line 5 of the claim currently states "the least one side." This is incorrect grammatically. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-2, 8, 13-17, 20, 22 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura et al. (US 2002/0130326).

**With respect to claim 1**, Tamura discloses, an array, comprising:

a plurality of light emitting devices (12-14 in fig. 3a,b) disposed over a substrate (10 in fig. 3b), the substrate having an upper surface (bottom of 10 in fig. 3b) and a plurality of side surfaces (right side of 10 in fig. 3b), each of the side surfaces being substantially perpendicular to the upper surface (clear from fig. 3b); and

at least one photodetector (15-17 in fig. 3a/b), arranged on one of said side surfaces (clear from fig. 3a/b and para. 59), that detects light emitted through the substrate from the light emitting devices (para. 45).

**With respect to claim 2**, Tamura discloses, the array of claim 1 (see above), wherein the plurality of light emitting devices (12-14 in fig. 3b) are formed over the upper surface of the substrate (clear from fig. 3a/b).

**With respect to claim 8**, Tamura discloses, the array of claim 1 (see above), further comprising a feedback circuit (5 in fig. 1) that measures a brightness level for each of the plurality of light emitting devices and varies a voltage applied to individual ones of the light emitting device to maintain a brightness level of each of the light emitting devices at a substantially constant level (paras. 12-13).

**With respect to claim 13**, Tamura discloses, a display (col. 1, lines 6-8) comprising the array of claim 1 (see above).

**With respect to claim 14**, Tamura discloses, a method for forming an array, comprising:

forming a plurality of light emitting devices (12-14 in fig. 3a/b) disposed over a substrate (10 in fig. 3b), said substrate having an upper surface (bottom of 10 in fig. 3b) and at least one side surface (right side of 10 in fig. 3b) substantially perpendicular to said upper surface of the substrate; and

forming a photodetector (16 in fig. 3a/b) that detects light emitted through the at least one side surface of the substrate from the light emitting devices (para. 57).

**With respect to claims 15 and 20**, these claims are seen as recitations of claims 2 and 8 respectively. As such claims 15 and 20 are rejected on the same merits shown above in their sister claims.

**With respect to claim 16**, Tamura discloses, the method of claim 14 (see above), further comprising forming the photodetector on the side surface of the substrate (clear from fig. 3b).

**With respect to claim 17**, Tamura discloses, the method of claim 15 (see above), wherein the photodetector includes a plurality of photodetectors (clear from fig. 3a).

**With respect to claim 22**, Tamura discloses, a method for maintaining a substantially constant brightness in a plurality of light emitting devices (12-14 in fig.

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3a/b) disposed over an upper surface of a substrate (10 in fig. 3b) in an array, comprising:

measuring light emitted from each of the light emitting devices (12-14 in fig. 3a/b; para. 12) by a photodetector (15-17 in fig. 3a/b) formed on a side surface of the substrate (right edge of 10 in fig. 3b), said side surface substantially perpendicular to the upper surface of said substrate (clear from fig. 3b); and

varying the voltage level applied to each of the light emitting devices to maintain a substantially constant brightness level of light emitted from the light emitting devices (col. 2, lines 26-28; para. 40).

**With respect to claim 27**, Tamura discloses, the method of claim 22 (see above), wherein varying the voltage level applied to each of the light emitting devices further comprises generating a compensation factor for each of the light emitting devices (para. 40) and applying the compensation factor to a voltage applied to the corresponding light emitting device (para. 40).

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 7, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2002/0130326).

**With respect to claim 7**, Tamura discloses, the array of claim 1 (see above).

Tamura does not explicitly disclose locating photodetectors along both the side of and the outer periphery of the substrate.

Tamura does disclose locating a photodetector (9 in fig. 2a/b) over outer periphery edges of the upper surface (10 in fig. 2b).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the two embodiments of Tamura, edge placed and outer periphery placed photodetectors.

The motivation for doing so would have been to achieve a more accurate feedback detection signal.

Therefore it would have been obvious to combine the two embodiments of Tamura for the benefit of more accurate current correction to obtain the invention as specified in claim 7.

**With respect to claim 24**, claim 24 is seen as a recitation of the limitations of claim 7. As such claim 24 is rejected on the same merits shown above in claim 7.

**With respect to claim 26**, Tamura discloses, the method of claim 22 (see above).

Tamura does not explicitly disclose locating photodetectors along both the side of and the outer periphery of the substrate.

Tamura does disclose locating a plurality of photodetectors (9 in fig. 2a/b) over outer periphery edges of the upper surface (para. 52-53).



At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the two embodiments of Tamura, edge placed and outer periphery placed photodetectors.

The motivation for doing so would have been to achieve a more accurate feedback detection signal.

Therefore it would have been obvious to combine the two embodiments of Tamura for the benefit of more accurate current correction to obtain the invention as specified in claim 26.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2002/0130326) in view of Cok (US 7,026,597).

**With respect to claim 18**, Tamura discloses, the method of claim 17 (see above).

Tamura does not expressly disclose, that the photo detectors are formed on each side surface.

Cok discloses, forming photodetectors on each edge of a display (20 in fig. 5).

Cok and Tamura are analogous art because they are from the same field of endeavor namely, placement of photodetectors within a display.

At the time of the invention it would have been obvious to one of ordinary skill in the art to place Tamura's photodetectors along each side of the display as disclosed by Cok.

The motivation for doing so would have been improved illumination detection (Cok; col. 1, lines 65-67).

Therefore it would have been obvious to combine Cok with Tamura for the benefit of improved illumination detection to obtain the invention as specified in claim 18.

14. Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2002/0130326) in view of Yamazaki et al. (US 6,424,326).

**With respect to claim 12**, Tamura discloses, the array of claim 8 (see above), wherein the feedback circuit (5 in fig. 1) includes a compensation factor generator (5 in fig. 1) for generating a compensation factor for each of the of the plurality of light emitting devices (para. 40).

Tamura does not expressly disclose, a memory array for storing the compensation factor for each of the plurality of light emitting devices.

Yamazaki discloses, a display detecting brightness (fig. 1) and a memory array (204 in fig. 6) for storing a compensation factor for each of the plurality of light emitting devices (col. 12, lines 21-55).

Yamazaki and Tamura are analogous art because they are both directed to a similar problem solving area, namely correcting uneven display luminance.

At the time of the invention it would have been obvious to one of ordinary skill in the art to store the correction factors generated by Tamura in a memory array as taught by Yamazaki.

The motivation for doing so would have been to store an ideal luminance to compare the current state of the display against, thus achieving a more uniform and ideal luminance (Yamazaki; col. 12, lines 28-44).

At the time of the invention it would have been obvious to combine Yamazaki with Tamura for the benefit of a more uniform and ideal luminance to obtain the invention as specified in claim 12.

**With respect to claim 21**, as shown above Tamura discloses claim 14. The further limitations of claim 21 are identical to those of claim 12. Therefore claim 21 is rejected on the same merits shown above in claim 12.

***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wlb  
9/23/06

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER

